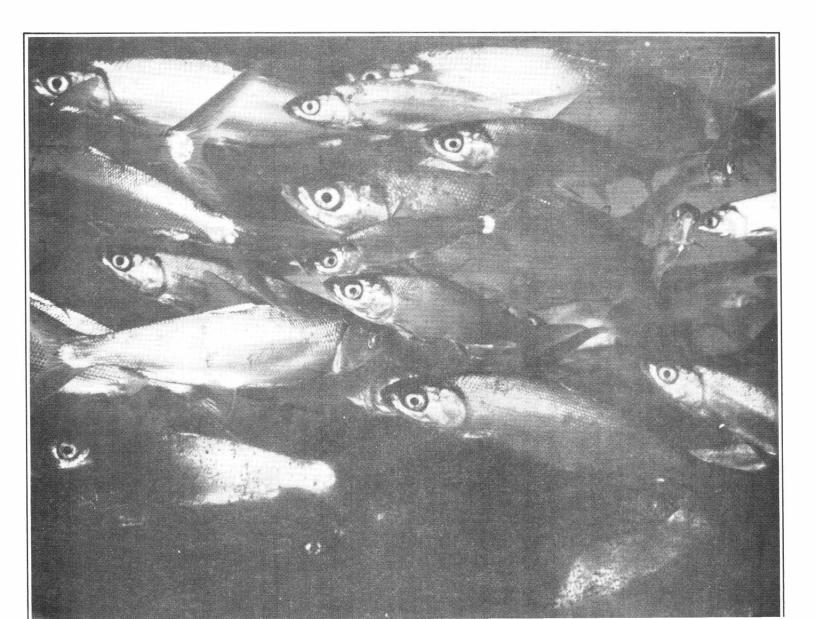
A BIBLIOGRAPHY OF AQUACULTURE RESEARCH IN HAWAII

Kevan L. Main and Robert H. Deupree, Jr.



ACKNOWLEDGMENTS

The authors thank Ellen Antill, Paul Bienfang, Robert Brick, John Corbin, Ken Leber, and Jim Wyban for providing helpful comments and carefully reviewing this bibliography. Special thanks to Carolyn Rahman for typing the many drafts of this manuscript. This project was supported by USDA Cooperative State Research Service grant #86-CRSR-2-2793.

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A BIBLIOGRAPHY OF AQUACULTURE RESEARCH IN HAWAII

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INTRODUCTION

In 1986, the U.S. Department of Agriculture funded a special grant to describe the current status of aquaculture in the state of Hawaii and the American insular areas of the Pacific. One of the objectives of the project was to prepare a comprehensive bibliography of aquaculture research efforts conducted in Hawaii during the last decade.

The aquaculture research community in Hawaii is extremely diverse and consists of more than 40 distinct research groups. The species that have been examined by research groups include marine shrimp, freshwater prawns, tilapia, channel catfish, Chinese carp and catfish, mahimahi, rainbow trout, salmon, mullet, milkfish, abalone, opihi, oysters, clams, and macro- and microalgae. Our bibliography provides references for articles that have been published in reviewed journals, books, popular magazines, technical reports, and government reports on this diverse species group. The majority of the literature included in the bibliography is available from the library of the Center for Tropical and Subtropical Aquaculture at the Oceanic Institute.

The bibliography was compiled from several different sources. The Aquaculture Development Program provided a list of aquaculture researchers who were contacted for reports and reprints. Follow-up phone calls were made to researchers who did not respond to written requests. Many of the bibliographic entries were taken from A Bibliography of Aquaculture Activities in the State of Hawaii, published by the Pacific Islands Development Program (Dwyer et al., 1984).

Library searches of journals, citation indices, and abstracts were used to supplement the information provided by researchers. The Fisheries and Aquatic Resources Abstracts were used to search by species, subject matter, and geographical region. Master's and doctoral theses on aquaculture-related topics from the University of Hawaii were collected. Bibliographies from the papers compiled up to this point were also searched for references.

A Dialog computer search was also completed. The following keywords were used:

Hawaii AND aquaculture OR fish farm OR fish culture OR fish cultivation OR mariculture OR shrimp farm OR prawn culture OR *Macrobrachium* culture OR tilapia OR oyster OR shellfish OR clam OR pisiculture.

BIBLIOGRAPHY

Akita, Geoffrey Yoshito. 1983. An epizootiologic study of mid-cycle disease of larval *Macrobrachium rosenbergii*. M.S. Thesis. University of Hawaii, Honolulu. 64 pp.

Akita, Geoffrey Yoshito, R. Nakamura, J. Brock, G. Miyamoto, M. Fujimoto, F. D. Onizuka, and D. Sumikawa Oishi. 1981. Epizootiologic study of mid-cycle disease of larval *Macrobrachium rosenbergii*. J. World Mariculture Society 12:223–230.

Akiyama, Dean Mikio. 1982. Epizootiological studies of a granulomatous disease of the topminnow *Poecilia mexicana*. M.S. Thesis. University of Hawaii, Honolulu. 90 pp.

Akiyama, Dean Mikio, James A. Brock, and Samuel R. Haley. 1982. Idiopathic muscle necrosis in the cultured freshwater prawn (Macrobrachium rosenbergii). Veterinary Medicine/Small Animal Clinician. Pp. 1119–1121.

Anderson, Bruce Statham. 1981. A study of the epidemiology of leptospirosis on aquaculture farms in Hawaii. Ph.D. Dissertation. University of Hawaii, Honolulu. 152 pp.

Anderson, Donald W., and Noel Smith. 1983. The culture of larval foods at the Oceanic Institute, Waimanalo, Hawaii. *In J. P. McVey*, ed. CRC handbook of mariculture, Vol. 1, Crustacean aquaculture. CRC Press, Boca Raton, Florida. Pp. 97-101.

Anonymous. 1979. The culture and sea-testing of topminnows (*Poecilia vittata*). Maui County Baitfish Project. Department of Economic Development, Wailuku, Maui, Hawaii. Unpubl. rep. 28 pp.

- Anonymous. 1982. Aquaculture in the long-term looks good. Makai 4(7):3–4.
- Anuenue Fisheries Research Center. 1979[?]. Specifications of some aspects of *Macrobrachium rosenbergii* culture at the Anuenue Fisheries Research Center (AFRC) in Hawaii. Anuenue Fisheries Research Center. 3 pp.
- Arndt, Gerald D., Loren D. Gautz, and Jaw-Kai Wang. 1984. Mechanical size grading of postharvest prawns. J. World Mariculture Society 15:61–72.
- Ashmore, S. B., R. W. Stanley, Lori Barck Moore, and Spencer R. Malecha. 1985. Effect on growth and apparent digestibility of diets varying in grain source and portion level in *Macrobrachium rosenbergii*. Proc. J. World Mariculture Society 16:209–216.
- Atkinson, Shannon K. C. 1981. The effects of water temperature on the growth rate of the freshwater prawn, *Macrobrachium rosenbergii*. M.S. Thesis. University of Hawaii, Honolulu. 56 pp.
- Ayers, Gilbert A. 1982. Hawaii production credit association aquaculture loans. Proc. Third Annual Big Island Aquaculture Conference. P. 30.
- Bailey-Brock, Julie H., and Peter J. Hayward. 1984. A freshwater bryozoan, *Hyalinella* vaihiriae Hastings (1929), from Hawaiian prawn ponds. Pacific Science 38(3):199-204.
- Bailey-Brock, Julie H., and Amy Ringwood. 1982. Methods for control of the mud blister worm, *Polydora websteri*, in Hawaiian oyster culture. U.H. Sea Grant Quarterly 4(3):6.
- Balazs, George H., and Ernest Ross. 1976. Effect of protein source and level on growth and performance of the captive freshwater prawn, *Macrobrachium rosenbergii*. Aquaculture 7:299–313.
- Balazs, George H., S. E. Olbrich, and M. E. Tumbleson. 1974. Serum constituents of the Malaysian prawn (*Macrobrachium rosenbergii*) and pink shrimp (*Penaeus marginatus*). Aquaculture 3:147-157.
- Baldwin, W. J. 1973. Culture of baitfish. FAO Aquaculture Bull. 5(2):6-7.
- Baldwin, Wayne J. 1975a. A review on the use of live baitfishes to capture skipjack tuna, *Katsuwonus pelamis*, in the tropical Pacific Ocean with emphasis on their behavior,

- survival, and availability. U.S. Department of Commerce, NOAA Tech. Rep. NMFS Circ. 408. Pp. 7–35.
- Baldwin, Wayne J. 1975b. Development of skipjack tuna fisheries in the tropical Pacific with cultured baitfishes. South Pacific Commission, Eighth Regional Technical Meeting on Fisheries. 8 pp.
- Baldwin, Wayne J. 1977. Suitability of cultured topminnow *Poecilia vittata*, family Poeciliidae, as a live baitfish for skipjack tuna, *Katsuwonus pelamis*, in the tropical Pacific. U.S. Department of Commerce, NOAA Tech. Rep. NMFS Circ. 408. Pp. 149–155.
- Baldwin, Wayne J. 1980. Cannibalism by cultured topminnows (family Poeciliidae). Proc. World Mariculture Society 11:311–316.
- Baldwin, Wayne J. 1983. The design and operation of an automatic feed dispenser. Aquaculture 34:151–155.
- Baldwin, Wayne J., and Michael J. McGrenra. 1979. Problems with the culture of topminnows (family Poeciliidae) and their use as live baitfishes. Proc. World Mariculture Society 10:249–259.
- Baranowski, E. S., W. K. Nip, and J. H. Moy. 1984. Partial characterization of a crude enzyme extract from the freshwater prawn, *Macrobrachium rosenbergii*. J. Food Science 49(6):1494–1495, 1505.
- Baranowski, John D., Carlos A. Dominguez, and Paul C. Magarelli. 1984. Effects of drying on selected qualities of *Spirulina platensis* protein. J. Agricultural and Food Chemistry 32(6):1385–1387.
- Bardach, John E. 1972. Potential for aquaculture development in Hawaii. Proc. Kauai Aquaculture Conference. Pp. 32–37.
- Bardach, John E. 1986. Constraints to polyculture. Aquacultural Engineering 5(2–4):287–300.
- Bartholomew, Edwin F. 1982. Starting a backyard fish farm. Makai 4(7):1–3.
- Bartholomew, Edwin F. 1986a. Cage culture in Hawaiian fishponds. Hawaii 4-H Cage Aquaculture Project. 23 pp.
- Bartholomew, Edwin F. 1986b. Cage culture in Hawaiian fishponds. Makai 8(4):1-3.
- Bartholomew, Edwin F., and Robert Agres. 1985. Production of topminnows (*Poecilia mexicana*) in an intensely manured polyculture system. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 675–696.
- Bell, Thomas A., and D. V. Lightner. 1984. IHHN virus: infectivity and pathogenicity studies in *Penaeus stylirostris* and *Penaeus vannamei*. Aquaculture 38:185–194.

- Bell, Thomas A., Carl S. Arume, and Donald V. Lightner. [Submitted.] Efficacy of formalin in reducing the levels of peritrichous ciliates on cultured marine shrimp. J. Aquaculture and Fisheries Management.
- Brewer, William A. 1979. Summary of environmental permit/review requirements for aquaculture/mariculture developments in Hawaii. Department of Planning and Economic Development Rep. 3 pp.
- Brewer, William A., and Richard C. Fassler. 1980. Permit requirements for aquaculture in Hawaii. U.H. Sea Grant College Marine Advisory Program, UNIHI-SEAGRANT-AB-81-02. 4 pp.
- Brewer, William A., Jack P. Huizingh, and Jane E. Sexton. 1985. Hawaii's OTEC park triggers high-tech aquaculture development. Infofish Marketing Digest 1:18–21.
- Brick, Robert W. 1970. Some aspects of raft culture of oysters in Hawaii. Hawaii Institute of Marine Biology Tech. Rep. No. 24. 47 pp.
- Brick, Robert W. 1974. Effects of water quality, antibiotics, phytoplankton and food on survival and development of larvae of *Scylla serrata* (Crustacea: Portunidae). Aquaculture 3:231–244.
- Brock, James A. 1983a. Diseases (infectious and non-infectious), metazoan parasites, predators and public health considerations in *Macrobrachium* culture and fisheries. *In J. P. McVey*, ed. CRC handbook of mariculture, Vol. 1, Crustacean aquaculture. CRC Press, Boca Raton, Florida. Pp. 329–370.
- Brock, James A. 1983b. Diseases of tilapia. Aquaculture Development Program Rep., Department of Land and Natural Resources, Hawaii. 64 pp.
- Brock, James A., Vernon T. Sato, Ron T. Shimojo, and Priscilla Banis. 1986. Observations and comments concerning terminal growth in the freshwater prawn *Macrobrachium rosenbergii* (de Man). *In* G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 162–178.
- Brock, James A., Lauren K. Nakagawa, T. Hayashi, Stephanie Teruya, and Hana Van Campen. 1986. Hepatopancreatic rickettsial infection of the penaeid shrimp, *Penaeus marginatus* (Randall), from Hawaii. J. Fish Diseases 9:73–77.
- Brooks, Mark. 1983. Crusty critters take center-stage at BYU conference. Makai 5(5):1–2.
- Buck, Homer, S. R. Malecha, and R. J. Baur. 1981. Polyculture of the freshwater prawn

- (*Macrobrachium rosenbergii*) with two combinations of carps in manured ponds. J. World Mariculture Society 12(2):203–213.
- Choy, Shelley, Dwight H. Kondo, Michael H. Maruyama, Norman K. Nakamura, and Sherwood D. Maynard. 1981. The Mokauea fishpond project: a beginning—the history, the accomplishments from September 1980 through March 1981. University of Hawaii Marine Option Program Rep. 154 pp.
- Coleman, D. E. 1976. Phototactic responses of larval *Macrobrachium rosenbergii* (de Man). U.H. Sea Grant College Program, Working Paper No. 23. 13 pp.
- Conte, Fred S. 1982. Aquaculture: an international prospective and opportunities for growth in Pacific states. Proc. Third Annual Big Island Aquaculture Conference. Pp. 4–10.
- Corbin, John S. 1982. Aquaculture in Hawaii: an overview. Proc. Third Annual Big Island Aquaculture Conference. Pp. 11–15.
- Corbin, John S. 1986. Improving world aquaculture research and development: the east-west family plan. *In* G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 1–6.
- Corbin, John S., and William A. Brewer. 1981.

 Mariculture and ocean thermal energy conversion—state-of-the-art assessments.

 Aquaculture Development Program Rep., Department of Land and Natural Resources, Hawaii. 84 pp.
- Corbin, John S., and Richard T. Gibson. 1979. Planning aquaculture development: the first time is always the hardest. Proc. World Mariculture Society 10:21–27.
- Corbin, John S., Michael M. Fujimoto, and Thomas Y. Iwai, Jr. 1982. Feeding practices and nutritional considerations for *Macrobrachium rosenbergii* culture in Hawaii. *In J. P. McVey*, ed. CRC handbook of mariculture, Vol. 1, Crustacean aquaculture. CRC Press, Boca Raton, Florida. Pp. 391–412.
- Corpuz, Gladys C. 1981. Laboratory culture of *Cellana exarata* Reeve (Gastropoda: Prosobranchia, Patellidae). Aquaculture 24:219–231.
- Costa-Pierce, Barry A. 1984. Ecological studies of semi-intensive prawn aquaculture ponds. Ph.D. Dissertation. University of Hawaii, Honolulu. 213 pp.

- Costa-Pierce, Barry A. 1985. Combined energy-aquaculture-agriculture systems. Salmon Farming Conference, Reykjavik. P. 8.
- Costa-Pierce, Barry A., and Edward A. Laws. 1985a. Chemotactically-active feed additive for prawns (*Macrobrachium rosenbergii*). Progressive Fish-Culture 47(1):59–61.
- Costa-Pierce, Barry A., and Edward A. Laws. 1985b. Effects of destratification on autotrophic and heterotrophic microplankton productivity in eutrophic aquaculture ponds. Aquaculture 50:141–151.
- Costa-Pierce, Barry A., D. B. Craven, and Edward A. Laws. 1982. Water quality effects of water hyacinths and fish polycultures in Hawaiian prawn (*Macrobrachium rosenbergii*) aquaculture ponds. Proc. Third Annual Big Island Aquaculture Conference. Pp. 36–53.
- Costa-Pierce, Barry A., Spencer R. Malecha, and Edward A. Laws. 1985. Effects of polyculture and manure fertilization on water quality and heterotrophic productivity in *Macrobrachium rosenbergii* ponds. Trans. American Fisheries Society 114:826–836.
- Costa-Pierce, Barry A., Laurel Clay, Spencer R. Malecha, and Edward A. Laws. 1984. Polyculture of Chinese carps and prawns at commercial densities and reduced feeding rates. I. Water and sediment microbial ecology. J. World Mariculture Society 15: 367–390.
- Costa-Pierce, Barry A., D. B. Craven, D. M. Karl, and Edward A. Laws. 1984. Correlation of in situ respiration rates and microbial biomass in prawn (*Macrobrachium rosenbergii*) ponds. Aquaculture 37:157–168.
- Costa-Pierce, Barry A., Spencer R. Malecha, Laurel Clay, and Edward A. Laws. 1986. Benthic microbial biomass, organic matter, and respiration changes in prawn (Macrobrachium rosenbergii) ponds with and without fish polycultures. In G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 420–428.
- Crear, David. 1972. Wastewater aquaculture. M.S. Thesis. University of Hawaii, Honolulu. 63 pp.
- Crear, David. 1980. Observations on the reproductive state of milkfish populations (*Chanos chanos*) from hypersaline ponds on Christmas Island (Pacific Ocean). Proc. World Mariculture Society 11:548–556.
- Cripps, M. C., and R. M. Nakamura. 1979. Inhibition of growth of *Macrobrachium* rosenbergii by calcium carbonate water

- hardness. Proc. World Mariculture Society 10:575–580.
- Critchlow, Leigh. 1982. OTEC aquaculture projects underway at Keahole. Makai 4(7):3, 5.
- Culley, Dudley D., Jr., Wayne J. Baldwin, and Kenneth J. Roberts. 1982. The feasibility of mass culture of the bullfrog in Hawaii—a preliminary evaluation. U.H. Sea Grant Cooperative Rep. UNIHI-SEAGRANT-CR-82-02. 26 pp.
- Davidson, Jack R. 1982. Public investment in aquaculture. Proc. Third Annual Big Island Aquaculture Conference. Pp. 2–4.
- Department of Education, State of Hawaii. 1983. Aquaculture resource guide. Department of Education, Hawaii. 55 pp.
- Divakaran, S., and Eirik O. Duerr. 1986. Characteristics of a blue-green alga (Spirulina platensis) preserved by acidulation with sulfuric acid. Oceanic Institute. Unpubl. manuscript. 10 pp.
- Dollar, Alexander M. 1972. Aquaculture development. Proc. Kauai Aquaculture Conference. Pp. 29–31.
- Dollnig, Richard. 1982. Rainbow trout. Proc. Third Annual Big Island Aquaculture Conference. Pp. 67–68.
- Dominy, Warren G., and H. Ako. [In press.] The utilization of blood meal as a protein ingredient in the diet of the marine shrimp *Penaeus vannamei*. Aquaculture.
- Doty, M. S., G. A. Santos, and Ong Kah Sin. 1983. Agar from *Gracilaria cylindrica*. Aquatic Botany 15:299–306.
- Dwyer, Megan, Charles Tanekanai, and K. Roger Uwate. 1984. A bibliography of aquaculture activities in the state of Hawaii. Pacific Islands Development Program. Pp. 1–25.
- Fassler, Richard C. 1979. Aquaculture in Hawaii: past and present. U.H. Sea Grant College Marine Advisory Program, UNIHI-SEAGRANT-AB-80-05. 2 pp.
- Fassler, Richard C. 1982a. An overview of marine shrimp and frog culture in Hawaii. Proc. Third Annual Big Island Aquaculture Conference. Pp. 75–77.
- Fassler, Richard C. 1982b. Development program offers guide to locating aquaculture land in Hawaii. Aquaculture Magazine (July-August). Pp. 16-20.

- Fassler, Richard C. 1982c. Locating land for aquaculture in Hawaii. Proc. Third Annual Big Island Aquaculture Conference. Pp. 16–20.
- Fast, Arlo W. 1986a. Low-cost, low-energy floating fish rearing enclosure for Hawaiian waters. Aquaculture Development Program, Department of Land and Natural Resources, Hawaii. Final rep. 17 pp.
- Fast, Arlo W. 1986b. Pond production systems: water quality management practices. In J. E. Lannan, R. O. Smitherman, and G. Tchobanoglous, eds. Principles and practices of pond aquaculture. Oregon State University Press, Oregon. Pp. 141–168.
- Fast, Arlo W., and Diane Mazarakis. 1985. A new floating fish pen for Hawaiian waters. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 189–210.
- Fast, Arlo W., David K. Barclay, and G. Akiyama. 1983. Artificial circulation of Hawaiian prawn ponds. U.H. Sea Grant Cooperative Rep. UNIHI-SEAGRANT-CR-84-01. 83 pp.
- Fujimura, T. 1974. Development of a prawn culture industry in Hawaii. Commercial Fisheries Research and Development Act Job Completion Rep. 26 pp.
- Fujimura, T., and H. Okamoto. 1970. Notes on progress made in developing a mass culturing technique for *Macrobrachium rosenbergii* in Hawaii. Indo-Pacific Fisheries Council, 14th Session. 17 pp.
- Garcia, David C. 1982. Marketing aquaculture products. Proc. Third Annual Big Island Aquaculture Conference. Pp. 95–96.
- Gautz, Loren D., and Jaw-Kai Wang. 1981. Mechanical sizing of fresh water prawn (Macrobrachium rosenbergii). American Society of Aquacultural Engineers, Paper No. 81-6523. 21 pp.
- Gibson, Richard Thomas. 1976. A strategy for earthen pond prawn production management (*Macrobrachium rosenbergii*). M.S. Thesis. University of Hawaii, Honolulu. 58 pp.
- Gibson, Richard Thomas, and Jaw-Kai Wang. 1977. An alternative prawn production system in Hawaii. U.H. Sea Grant Tech. Rep. UNIHI-SEAGRANT-TR-77-05. 36 pp.
- Gibson, Richard Thomas, and Jaw-Kai Wang. 1979. A prawn population management model. Trans. American Society of Agricultural Engineers 22(1):207–210, 214.

- Goldstein, Barry B. 1984. The commercial cultivation of *Crassostrea gigas* in a landbased, tropical, managed food chain. Aquaculture 39:393–402.
- Gopalakrishnan, K. 1976. Larval rearing of red shrimp *Penaeus marginatus* (Crustacea). Aquaculture 9:145–154.
- Grau, E. Gordon, J. L. Specker, R. S. Nishioka, and H. A. Berm. 1982. Factors determining the occurrence of the surge in thyroid activity in salmon during smoltification. Aquaculture 28(1-2):49-57.
- Grau, E. Gordon, R. S. Nishioka, J. L. Specker, and H. A. Berm. 1985. Endocrine involvement in the smoltification of salmon. *In B. Lofts and W. N. Holmes*, eds. Current trends in comparative endocrinology. Hong Kong University Press. Pp. 491–493.
- Grau, E. Gordon, Arlo W. Fast, Richard S. Nishioka, Howard A. Bern, David K. Barclay, and Steven A. Katase. 1985. Variations in thyroid hormone levels and in performance in the seawater challenge test accompanying development in coho salmon raised in Hawaii. Aquaculture 45:121–132.
- Hadfield, Michael G. 1984. Settlement requirements of molluscan larvae: new data on chemical and genetic roles. Aquaculture 39:283–298.
- Hagood, R. W., G. N. Rothwell, M. Swafford, and M. Tosaki. 1981. Preliminary report on the aquacultural development of the dolphin fish, *Coryphaena hippurus* (Linnaeus). J. World Mariculture Society 12(1):135–139.
- Hamane, Tadayuki, 1982. Marketing approaches. Proc. Third Annual Big Island Aquaculture Conference. P. 102.
- Hawaii Aquaculture Development Program. 1980–1983. Aquaculture in Hawaii Newsletter 1(1–5).
- Hawaii Institute of Marine Biology. 1973. Proc. Pacific Islands Mariculture Conference, University of Hawaii, Honolulu. 88 pp.
- Helfrich, Philip. 1979. Aquaculture in Hawaii. Proc. Seminar/Workshop on Utilization and Management of Inshore Marine Ecosystems of the Tropical Islands. Pp. 100–101.
- Herrick, S. F., Jr. 1977. Some economic and technological aspects related to commercial production of the topminnow *Poecilia vittata*. R. S. Shomura, compiler. Unpubl. collection of baitfish papers. Pp. 156–159.
- Herrick, Samuel F., Jr., and Wayne J. Baldwin. 1975. The commercial production of topminnows: a preliminary economic

- analysis. U.H. Sea Grant Advisory Rep. UNIHI-SEAGRANT-AR-75-02. 23 pp.
- Higa, Harry H., Thomas R. Sawa, Vernon T. Sato, James A. Brock, Sam F. Perri, and Nicholas E. Palumbo. 1982. *Aeromonas hydrophilia* encountered during survey of leptospirae in prawn farm pond water. J. Environmental Health 45(1):20–23.
- Holland, Kim.1978. Chemosensory orientation to food by a Hawaiian goatfish (*Parupeneus porphyreus*, Mullidae). J. Chemical Ecology 4(2):173–186.
- Holland, Kim. 1985. Detection and food search thresholds of *Macrobrachium rosenbergii*. Chemi. Senses 10(3):461.
- Horiuchi, Richard H., Steven S. Ogata, and Clayward K. M. Tam. 1981. An assessment of molting methods for culturing soft-shell crabs in Hawaii. U.H. Sea Grant Program Working Paper No. 47. 24 pp.
- Huang, Wen-Yuan, Jaw-Kai Wang, and T. Fujimura. 1976. A model for estimating prawn populations in ponds. Aquaculture 8:57–70.
- Hugh, Williams I., and Warren Dominy. 1985. Evaluation of physical form of feed: comparison of swine diets in meal, crumbled, pelleted, and extruded form. Hawaii Institute of Tropical Agriculture and Human Resources Research Series 041, University of Hawaii. 10 pp.
- Hugh, Williams I., Warren Dominy, and Eirik Duerr. 1985. Evaluation of dehydrated spirulina (Spirulina platensis) as a protein replacement in swine starter diets. Hawaii Institute of Tropical Agriculture and Human Resources Research Extension Series 056, University of Hawaii. 12 pp.
- Huguenin, John Edward, and Guy N. Rothwell. 1979. The problems, economic potentials and system design of large future tropical marine fish cage systems. Proc. World Mariculture Society 10:162-181.
- Hunt, Jeffrey W. 1982. Getting started in backyard aquaculture. Proc. Third Annual Big Island Aquaculture Conference. Pp. 58–66.
- Hunt, Jeffrey W., R. Y. Ito, A. Zirker, E. A. Birch, D. L. Norton, S. F. Gernler, A. A. Fegley, S. K. Warlop, and E. Ernce Gernler. 1979. Cooperative *Gracilaria* project—environmental factors affecting the growth rate of *Gracilaria bursapastoris* (ogo) and *Gracilaria coronopifolia* (limu manauea). Marine Skill Rep., Marine Option Program, Windward Community College, Working Paper No. 49. 171 pp.
- Hunter, Brian, Gary Pruder, and James Wyban. 1987. Biochemical composition of pond

- biota, shrimp ingesta, and relative growth of *Penaeus vannamei* in earthen ponds. J. World Aquaculture Society 18:162–174.
- Iwai, Thomas Yoshio, Jr. 1976a. A practical volumetric method for estimating post-larvae. Anuenue Fisheries Research Center, Honolulu. 6 pp.
- Iwai, Thomas Yoshio, Jr. 1976b. Energy transformation and nutrient assimilation by the freshwater prawn *Macrobrachium rosenbergii* under controlled laboratory conditions. M.S. Thesis. University of Hawaii, Honolulu. 119 pp.
- Iwai, Thomas Yoshio, Jr. 1976c. Seven monthly diel measurements of selected water quality parameters of a prawn (Macrobrachium rosenbergii) rearing pond, Oahu, Hawaii: September 1974–March 1975. Anuenue Fisheries Research Center, Honolulu. 6 pp.
- Iwai, Thomas Yoshio, Jr. 1977. Preliminary investigation of the effect of ammonia on the growth and development of newly hatched *Macrobrachium rosenbergii* larvae. Anuenue Fisheries Research Center, Honolulu. 17 pp.
- Iwai, Thomas Yoshio, Jr. 1978a. A preliminary investigation on oxygen consumption of *Macrobrachium rosenbergii*. U.H. Sea Grant College Program Working Paper No. 31. 14
- Iwai, Thomas Yoshio, Jr. 1978b. Natural pond productivity of selected freshwater prawn (Macrobrachium rosenbergii) ponds. I. A simple and effective method for the separation of annelids from prawn pond mud and detrital samples. Anuenue Fisheries Research Center, Honolulu. 6 pp.
- Iwai, Thomas Yoshio, Jr. 1978c. Natural pond productivity of selected freshwater prawn (Macrobrachium rosenbergii) ponds. II. The composition and vertical distribution of benthic macrofauna from pond berm mud samples. Anuenue Fisheries Research Center, Honolulu. 8 pp.
- Iwai, Thomas Yoshio, Jr. 1978d. Natural pond productivity of selected freshwater prawn (Macrobrachium rosenbergii) ponds. III. Distribution of benthic organisms from detrital "ooze," surface, and bottom mud samples. Anuenue Fisheries Research Center, Honolulu. 10 pp.

- Iwai, Thomas Yoshio, Jr. 1978e. Natural pond productivity of selected freshwater prawn (Macrobrachium rosenbergii) ponds. IV. A simple technique in acquiring benthic and berm mud samples in assessing prawn pond productivity. Anuenue Fisheries Research Center, Honolulu, 7 pp.
- Iwai, Thomas Yoshio, Jr. 1979. A limnological investigation of selected water quality parameters from a freshwater prawn (Macrobrachium rosenbergii) rearing pond. Oahu, Hawaii. Anuenue Fisheries Research Center, Honolulu. 38 pp.

Iwai, Thomas Yoshio, Jr. 1983. Disinfection procedure of the Anuenue Fisheries Research Center's prawn hatchery, seawater tower, and seawater well. Anuenue Fisheries

Research Center, Honolulu. 15 pp.

Iwai, Thomas Yoshio, Jr. 1986. Phytoplankton observed in Macrobrachium rosenbergii prawn ponds receiving either artesian, stream, or reservoir source water. In G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aguaculture Crustacea, February 9-11, 1983. Brigham Young University, Laie, Hawaii. 26

Iwai, Thomas Yoshio, Jr., and Jodi Nakamura. 1983. Observations made on the effects of rotenone to the freshwater prawn, Macrobrachium rosenbergii, and fish Tilapia spp. Anuenue Fisheries Research Center, Hono-

lulu. 27 pp.

Iwai, Thomas Yoshio, Jr., Francis G. Oishi, and Ronnie Y. Shimojo. 1985. Preliminary investigation of hatchery water quality parameters from selected prawn (Macrobrachium rosenbergii) larvae production and phytoplankton tanks. Anuenue Fisheries Research Center, Honolulu. 46 pp.

- Kaneko, Jiro John. 1983. An investigation of a monogentic trematode infestation of tilapia (Oreochromis mossambicus) in seawater. M.S. Thesis. University of Hawaii, Honolulu.
- Katase, Steve. 1982. The American eel: a good candidate for commercial aquaculture in Hawaii. Proc. Third Annual Big Island Aquaculture Conference. Pp. 72-74.
- Katase, Steven A., Arlo W. Fast, and David Barclay. 1985. Induced maturation and ovulation of rainbow trout, Salmo gairdneri, in seawater using photoperiod control. Proc. Second International Conference on Warm Water Aquaculture Finsish. Pp. 481-492.

- Kato, Kenneth N. 1972. Problems associated with the commercial production of aquaculture products. Proc. Kauai Aquaculture Conference. Pp. 17-21.
- Kay, E. Alison, Gladys C. Corpuz, and William H. Magruder. 1982. Opihi: their biology and culture. Aquaculture Development Program Rep., Department of Land and Natural Resources, Hawaii. 98 pp.

Kikuchi, William Kenji. 1973. Hawaiian aquacultural system. Ph.D. Dissertation.

University of Arizona. 299 pp.

Klemm, Rick. 1981. Study shows frozen prawns to be nearly "fresh" in taste. Makai 3(8):1-3.

- Kneale, Douglas C. 1979. Factors affecting the survival and growth of nursery reared Macrobrachium rosenbergii. M.S. Thesis. University of Hawaii, Honolulu. 64 pp.
- Kneale, Douglas C., and Jaw-Kai Wang. 1979. A laboratory investigation of Macrobrachium rosenbergii nursery production. Proc. World Mariculture Society 10:359-368.
- Kraul, Syd. 1983. Results and hypotheses for the propagation of the grey mullet, Mugil cephalus L. Aquaculture 30:273-284.
- Kraul, Syd. 1984. Progress in the culture of larval marine fishes at the Waikiki Aquarium. Aquaculture Planning Committee Rep. 8 pp.
- Kraul, Syd. 1985. Comparative hatchery characteristics of yellowtail jack, Seriola lalandei, and mahimahi. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 99-108.
- Kraul, Syd, Alan Nelson, and Diana Wenzel. 1985. Feeding requirements of larval Coryphaena hippurus. Larval Research Department, Waikiki Aquarium. Unpubl. manuscript. 20 pp.

Kuamoo, Diane Mazarakis. 1986. A least cost trout feed trial: Lokowaka Pond, Hilo. Marine Options Program, University of

Hawaii, Hilo. Final rep. 5 pp.

- Kuo, Ching-Ming, and Colin E. Nash. 1975. Recent progress on the control of ovarian development and induced spawning of the grey mullet (Mugil cephalus L.). Aquaculture 5:19-29.
- Kuo, Ching-Ming, and Colin E. Nash. 1979. Annual reproductive cycle of milkfish, Chanos chanos Forskal, in Hawaiian waters. Aquaculture 16:247-251.
- Kuo, Ching-Ming, and W. O. Watanabe. 1978. Circadian responses of teleostean oocytes to gonadotropins and prostaglandins determined by cyclic AMP concentration. Annales De Biologie Animale Biochimie Biophysique 18(4):949-956.

- Kuo, Ching-Ming, Ziad H. Shehadeh, and Colin E. Nash. 1973. Induced spawning of captive grey mullet (*Mugil cephalus* L.) females by injection of human chorionic gonadotropin (HCG). Aquaculture 1:429–432.
- Kuo, Ching-Ming, Colin E. Nash, and Ziad H. Shehadeh. 1974a. A procedural guide to induce spawning in grey mullet (Mugil cephalus L.). Aquaculture 3:1-14.
- Kuo, Ching-Ming, Colin E. Nash, and Ziad H. Shehadeh. 1974b. The effects of temperature and photoperiod on ovarian development in captive grey mullet (Mugil cephalus L). Aquaculture 3:25-43.
- Kuo, Ching-Ming, Colin E. Nash, and W. O. Watanabe. 1979. Induced breeding experiments with milkfish, Chanos chanos Forskal, in Hawaii. Aquaculture 18:95–105.
- Kurisu, Derek. 1982. Marketing approaches. Proc. Third Annual Big Island Aquaculture Conference. Pp. 103–104.
- Kuwabara, James S. 1975. The application of a statistical optimization technique for the culture of *Macrobrachium rosenbergii* larvae (giant Malaysian. prawn). U.H. Sea Grant College Program Working Paper No. 9. 43 pp.
- Lam, Chee Y., and Jaw-Kai Wang. 1985. Estimating harvest efficiency of freshwater prawns. American Society of Agricultural Engineers, 1985 Summer Meeting. Paper No. 85-5010. 17 pp.
- Lam, Chee Y., and Jaw-Kai Wang. 1986. Engineering research for improvement of freshwater prawn harvest yield in Hawaii. Agricultural Engineering 5(2-4):313-323.
- Landau, Matthew. [In press.] Nutritional composition of the Great Salt Lake strain of brine shrimp reared in a manure/aquaculture system. Southwest Naturalist.
- Landau, Matthew, Garret Miyamoto, and Christine Bolis. 1985. Growth and amino acid composition of *Artemia salina* (L., 1758) fed algae grown in different media (anostraca). Crustaceana 49(3):318–321.
- Landau, Matthew, Christine Bolis, and Garret Miyamoto. 1986. A method for the production of the brine shrimp, Artemia salina Leach, in a manure-based system. Agricultural Wastes 15:79–83.
- Laws, Edward A. 1986. Unstructured food webs: a model for aquaculture. Aquacultural Engineering 5(2–4):161–170.

- Laws, Edward A., and Spencer R. Malecha. 1981. Application of a nutrient-saturated growth model to phytoplankton management in freshwater prawn (*Macrobrachium rosenbergii*) ponds in Hawaii. Aquaculture 24:91–101.
- Laws, Edward A., K. L. Terry, J. Wickman, and M. S. Chulup. 1983. A simple algal production system designed to utilize the flashing light effect. J. Biotechnology and Bioengineering 25:2319-2335.
- Laws, Edward A., S. Taguchi, J. Hirata, and L. Pang. 1986. High algal production rates achieved in a shallow outdoor flume. J. Biotechnology and Bioengineering 28(2): 191-197.
- Leary, D., and Thomas Yoshio Iwai, Jr. 1974. A five-month study of selected water quality parameters in a freshwater prawn (*Macrobrachium rosenbergii*) rearing pond. Hawaii Institute of Marine Biology. Unpubl. manuscript. 58 pp.
- Leber, Kenneth M. [Submitted.] Feeding ecology of *Penaeus vannamei* in growout ponds: natural foods versus pelletized feed. Aquaculture. 37 pp.
- Lee, Cheng-Sheng. 1985. Environmental factors in the reproduction of milkfish. *In* Cheng-Sheng Lee and I-Chiu Liao, eds. Reproduction and culture of milkfish. Oceanic Institute and Tungkang Marine Laboratory, Waimanalo, Hawaii. Pp. 99–114.
- Lee, Cheng-Sheng, and Bruno Menu. 1981. Effects of salinity on egg development and hatching in grey mullet *Mugil cephalus* L. J. Fish Biology 19:179–188.
- Lee, Cheng-Sheng, and F. Hu. 1983. Influences of Ca and Mg ions on the egg survival of grey mullet, *Mugil cephalus* L. J. Fish Biology 22:13–20.
- Lee, Cheng-Sheng, and Robert A. Shleser. 1984. Production of *Penaeus vannamei* in cattle manure-enriched ecosystems in Hawaii. J. World Mariculture Society 15:52-60.
- Lee, Cheng-Sheng, and James N. Sweeney. 1985. Morphometric studies on three penaeid shrimp, *Penaeus japonicus*, *P. vannamei*, and *P. marginatus* in Hawaii. Proc. First International Conference on the Culture of Penaeid Prawns/Shrimp. Philippines. P. 176.
- Lee, Cheng-Sheng, and Clyde S. Tamaru. 1986. Application of LHRH-a cholesterol pellets to maturation of milkfish. Proc. UJNR Panel on Aquaculture. Kyoto, Japan.
- Lee, Cheng-Sheng, and G. M. Weber. 1986. Effects of salinity and photoperiod on 17 α -methyltestosterone induced spermatogenesis in the

- grey mullet, *Mugil cephalus* L. Aquaculture 56:53–62.
- Lee, Cheng-Sheng, Clyde S. Tamaru, and G. M. Weber. [In press.] Studies on the maturation and spawning of milkfish *Chanos chanos* Forskal in a photoperiod controlled room. J. World Aquaculture Society.
- Lee, Cheng-Sheng, James N. Sweeney, and William K. Richards, Jr. 1985. The effects of stocking densities on growth and survival of *Penaeus vannamei* in cow manure-enriched ponds. Proc. First International Conference on the Culture of Penaeid Prawns/Shrimp. Philippines. P. 170.
- Lee, Cheng-Sheng, Clyde S. Tamaru, and L. W. Crim. 1985. Preparation of a luteinizing hormone-releasing hormone cholesterol pellet and its implantation in the milkfish (Chanos chanos Forskal). In Cheng-Sheng Lee and I-Chiu Liao, eds. Reproduction and culture of milkfish. Oceanic Institute and Tungkang Marine Laboratory, Waimanalo, Hawaii. Pp. 215–226.
- Lee, Cheng-Sheng, Malcolm S. Gordon, and Wade O. Watanabe, eds. 1986. Aquaculture of milkfish (*Chanos chanos*): state of the art. Oceanic Institute, Waimanalo, Hawaii. 284 pp.
- Lee, Cheng-Sheng, James N. Sweeney, and William K. Richards, Jr. 1986. Marine shrimp aquaculture: a novel waste treatment system. Aquacultural Engineering 5(2-4):147-160.
- Lee, Cheng-Sheng, Clyde S. Tamaru, and Chris D. Kelley. 1986. Technique for making chronic-release LHRH-a and 17 α -methyltestosterone pellets for intramuscular implantation in fishes. Aquaculture 59:161–168.
- Lee, Cheng-Sheng, G. M. Weber, and Clyde Tamaru. 1986. Effect of orally administered 17 α-methyl-testosterone on spermatogenesis in immature milkfish, *Chanos chanos* Forskal. J. Fish Biology 29:567–572.
- Lee, Cheng-Sheng, Clyde S. Tamaru, Garret T. Miyamoto, and Chris D. Kelley. 1987. Induced spawning of grey mullet (Mugil cephalus) by LHRH-a. Aquaculture 62:327–336..
- Lee, Cheng-Sheng, Clyde S. Tamaru, Jessie E. Banno, and Chris D. Kelley. 1986. Influence of chronic administration of LHRH-analogue and/or 17 α -methyl-testosterone on maturation in milkfish, *Chanos chanos*. Aquaculture 59:147–159.
- Lee, Cheng-Sheng, Clyde S. Tamaru, Chris D. Kelley, and Jessie E. Banno. 1986. Induced spawning of milkfish, *Chanos chanos*, by a

- single application of LHRH-analogue. Aquaculture 58:87–98.
- Lee, Cheng-Sheng, Clyde S. Tamaru, J. E. Banno, C. D. Kelley, A. Bocek, and Jim A. Wyban. 1986. Induced maturation and spawning of milkfish, *Chanos chanos* Forskal, by hormone implantation. Aquaculture 52:199– 205.
- Lee, Kendrick K. F. 1984. Promotion of a new aquaculture product—"Hawaiian prawns." J. World Mariculture Society 15:339–340.
- Lee, Kendrick K. F., John S. Corbin, and William A. Brewer. 1983. Overview of oyster culture in Hawaii and various United States Pacific island territories. Proc. North American Oyster Workshop, March 1981. World Mariculture Society, Special Publication No. 1. Pp. 70–85.
- Leung, PingSun. 1986. Applications of systems modeling in aquaculture. Aquacultural Engineering 5(2–4):171–182.
- Leung, PingSun, and Yung C. Shang. 1982. Economics of polyculture: implications from ecological principles. J. International Society of Ecological Modeling 4(3-4):151-161.
- Leung, PingSun, Lou A. Fallon, and Yung C. Shang. 1984. Bioeconomic modeling of freshwater prawn production: the Hawaiian experience. J. International Society of Ecological Modeling 6(1-2):25-37.
- Lightner, D. V., R. M. Redman, and T. A. Bell. 1983a. Infectious hypodermal and hematopoietic necrosis, a newly recognized virus disease of penaeid shrimp. J. Invertebrate Pathology 42:62–70.
- Lightner, D. V., R. M. Redman, and T. A. Bell. 1983b. Observations on the geographic distribution, pathogenesis and morphology of the baculovirus from *Penaeus monodon* Fabricius. Aquaculture 32:209–233.
- Lightner, D. V., R. M. Redman, and T. A. Bell. 1986. Histopathology and diagnostic methods for IHHN and MBV diseases in cultured penaeid shrimp. *In* G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 291–303.
- Lightner, D. V., R. M. Redman, T. A. Bell, and J. A. Brock. 1983. Detection of IHHN virus in *Penaeus stylirostris* and *P. vannamei* imported into Hawaii. J. World Mariculture Society 14:212–225.
- Lightner, D. V., R. M. Redman, T. A. Bell, and J. A. Brock. 1984. An idiopathic proliferative disease syndrome of the midgut and ventral

- nerve in the kuruma prawn, *Penaeus japonicus* Bate, cultured in Hawaii. J. Fish Diseases 7:183-191.
- Losordo, Thomas M. 1980. An investigation of the oxygen demand materials of the water column in prawn grow-out ponds. M.S. Thesis. University of Hawaii, Honolulu. 102 pp.
- Losordo, Thomas M., Jaw-Kai Wang, Mark J. Brooks, and Chee Y. Lam. 1986. A mechanized seine harvest system for freshwater prawns. Aquacultural Engineering 5(1):1–15.

- Macaulay, Patrick J., Karl C. Samples, and Yung C. Shang. 1986. Assessing the performance of market distribution channels for aquacultured products: the case of Hawaii produced marine shrimp. *In* G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 34–42.
- Madden, William D., and Craig L. Paulsen. 1977.
 The potential for mullet and milkfish culture in Hawaiian fishponds. Oceanic Institute Rep. for the State of Hawaii, Department of Planning and Economic Development. 54 pp.
- Madenjian, Charles P., Gary L. Rogers, and Arlo W. Fast. 1985. Microcomputer modeling of night time dissolved oxygen dynamics in Hawaiian prawn ponds. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 211–221.
- Madenjian, Charles P., Gary L. Rogers, and Arlo W. Fast. 1987. Predicting night time dissolved oxygen loss in prawn ponds of Hawaii: Part I. Evaluation of traditional methods. Aquacultural Engineering 6:191–208.
- Madenjian, Charles P., Gary L. Rogers, and Arlo W. Fast. 1987. Predicting night time dissolved oxygen loss in prawn ponds of Hawaii: Part II. A new method. Aquacultural Engineering 6:209–225.
- Malecha, Spencer R. 1977. Genetics and selective breeding of *Macrobrachium rosenbergii*. In Joe A. Hansen and Harold L. Goodwin, eds. Shrimp and prawn farming in the Western

- Hemisphere (state-of-the-art reviews and status assessments). Dowden, Hutchinson & Ross, Inc., Stroudsburg, Pennsylvania. Pp. 328–355.
- Malecha, Spencer R. 1978. Development of prawn aquaculture in Hawaii. The Commercial Fish Farmer and Aquaculture News 4(3):14–18.
- Malecha, Spencer R. 1980. Development and general characterization of genetic stocks as *Macrobrachium rosenbergii* and their hybrids for domestication. U.H. Sea Grant Quarterly 2(4):1–6.
- Malecha, Spencer R. 1983a. Commercial seed production of the freshwater prawn, *Macrobrachium rosenbergii*, in Hawaii. *In J. P. McVey*, ed. CRC handbook of mariculture, Vol. 1, Crustacean aquaculture. CRC Press, Boca Raton, Florida. Pp. 205–230.
- Malecha, Spencer R. 1983b. Commercial pond production of the freshwater prawn (*Macrobrachium rosenbergii*) in Hawaii. *In J. P. McVey*, ed. CRC handbook of mariculture, Vol. 1, Crustacean aquaculture. CRC Press, Boca Raton, Florida. Pp. 231–259.
- Malecha, Spencer R. 1983c. Crustacean genetics and breeding: an overview. Aquaculture 33:395–413.
- Malecha, Spencer R. 1986. New techniques for the assessment and optimal management of growth and standing crop variation in the cultured freshwater prawn. Aquacultural Engineering 5(2–4):183–197.
- Malecha, Spencer R., D. Sarver, and David R. Onizuka. 1980. Approaches to the study of domestication in the freshwater prawn, *Macrobrachium rosenbergii*, with special emphasis on the Anuenue and Malaysian stocks. Proc. World Mariculture Society 11:500–528.
- Malecha, Spencer R., J. Polovina, and R. Moav. 1981. Multi-stage rotational stocking and harvesting system for year-round culture of the freshwater prawn, *Macrobrachium rosenbergii*. U.H. Sea Grant Tech. Rep. UNIHI-SEAGRANT-TR-81-01. 26 pp.
- Malecha, Spencer R., Scott Masuno, and David R. Onizuka. 1984. The feasibility of measuring the heritability of growth pattern variation in juvenile freshwater prawns, *Macrobrachium rosenbergii* (de Man). Aquaculture 38:347–363.
- Malecha, Spencer R., D. H. Buck, R. J. Baur, and David R. Onizuka. 1981. Polyculture of the freshwater prawn, *Macrobrachium rosenbergii*, Chinese and common carps in ponds enriched with swine manure. I. Initial trials. Aquaculture 25:101–116.

- Mauro, Nicholas A., and Spencer R. Malecha. 1984a. Intraspecific comparison of hemocyanin oxygen affinity and the effects of hypoxia on oxygen consumption in *Macrobrachium rosenbergii* (de Man). Comparative Biochemistry and Physiology 77A(4):631–633.
- Mauro, Nicholas A., and Spencer R. Malecha. 1984b. The effects of hypoxia on blood pH and lactate levels in *Macrobrachium rosenbergii* (de Man). Comparative Biochemistry and Physiology 77A(4):627–630.
- May, Robert C. 1976. Studies on the culture of threadfin, *Polydactylus sexfilis*, in Hawaii. *In* T. V. R. Pillay and W. A. Dill, eds. Advances in aquaculture. FAO Technical Conference on Aquaculture, May 26–June 2, 1976, Kyoto, Japan. FAO, Rome. Pp. 184–186.
- McSweeny, Edward S. 1984. Wholesale/retail market aspects of production and marketing at Amorient Aquafarm. *In D. S. Liao and R. S. Johnston, eds. Proc. Workshop on Shrimp and Prawn Markets, Charleston, South Carolina. Pp. 49–50.*
- McSweeny, Edward S. 1986. Applied research in aquaculture—an industry perspective. Aquacultural Engineering 5(2–4):325–332.
- McVey, James P. 1980. Current developments in the penaeid shrimp culture industry. Aquaculture Magazine (July-August). Pp. 20-25.
- Mencher, F. M., R. B. Spencer, J. W. Woessner, S. J. Katase, and D. K. Barclay. 1983. Growth of nori (*Porphyra tenera*) in an experimental OTEC-aquaculture system in Hawaii. J. World Mariculture Society 14:458–470.
- Meriwether, Frank H., Edward D. Scura, and Wayne Y. Okamura. 1984. Cage culture of red tilapia in prawn and shrimp ponds. J. World Mariculture Society 15:254–265.
- Meriwether, Frank H., Edward D. Scura, and Wayne Y. Okamura.1986. The culture of red tilapia in freshwater prawn and brackish water shrimp ponds. *In* G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 260–279.
- Miyamoto, G., J. Brock, R. Nakamura, L. Nakagawa, R. Shimojo, V. Sato, and G. Akita. 1986. A preliminary microbiological and water quality survey of two Hawaiian prawn (Macrobrachium rosenbergii) hatcheries. In G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9-11, 1983. Brigham Young University, Laie, Hawaii. Pp. 429-458.

- Moore, Lori Barck. 1985. The role of feeds and feeding in aquatic animal production. Geo J. 10(3):245–251.
- Moore, Lori Barck. 1986. Input of organic materials into aquaculture systems: emphasis on feeding semi-intensive system. Aquacultural Engineering 5(2–4):123–133.
- Moore, Lori Barck, and Richard W. Stanley. 1982. Corn silage as a feed supplement for grow-out of *Macrobrachium rosenbergii* in ponds. J. World Mariculture Society 13:86–94.
- Morimoto, Richard. 1982. State aquaculture loan program. Proc. Third Annual Big Island Aquaculture Conference. 29 pp.
- Moss, J. R., and M. S. Doty. 1987. Establishing a seaweed industry in Hawaii: an initial assessment. A study produced for the Aquaculture Development Program, Hawaii Department of Land and Natural Resources.
- Nash, Colin E. 1972. Marine fish farming development. Proc. Kauai Aquaculture Conference. Pp. 22–28.
- Nash, Colin E. 1978. Institute gains international reputation for aquaculture research, development. The Commercial Fish Farmer and Aquaculture News 4(3):27–33.
- Nash, Colin E., and Ching-Ming Kuo. 1975. Hypotheses for problems impeding the mass propagation of grey mullet and other finfish. Aquaculture 5:119–133.
- Nash, Colin E., Ching-Ming Kuo, W. D. Madden, and C. L. Paulsen. 1977. Swimbladder inflation and survival of *Mugil cephalus* to 50 days. Aquaculture 12:89–94.
- Nichols, Claudia. 1980. Aquaculture: an explosive Hawaii market. Honolulu Downtown Magazine 2:16–20.
- Nip, W. K., and J. H. Moy. 1979. Effect of freezing methods on the quality of the prawn, *Macrobrachium rosenbergii*. Proc. World Mariculture Society 10:761–768.
- Nip, W. K., and J. H. Moy. 1981. Effect of thawing and subsequent chilling on the quality of prawn, *Macrobrachium rosenbergii*. J. Food Processing and Preservation 5:207–213.
- Nip, W. K., H. M. K. Zeidan, and J. H. Moy. 1981.

 Amino acid profile of insoluble collagen isolated from freshwater prawn, *Macrobrachium rosenbergii*. J. Food Science 46(5):1633–1634.
- Nip, W. K., C. Y. Lam, and J. H. Moy. 1985. Partial characterization of a collagenolytic enzyme fraction from the hepatopancreas of the freshwater prawn, *Macrobrachium rosenbergii*. J. Food Science 50(4):1187–1188.

- Nip, W. K., J. H. Moy, and Y. Y. Tzang. 1985. Effect of purging on quality changes of ice-chilled freshwater prawn, *Macrobrachium rosenbergii*. J. Food Technology 20:9–15.
- Okuyama, Carl H. 1982. Marketing approaches. Proc. Third Annual Big Island Aquaculture Conference. Pp. 97–99.
- Onizuka, David. 1982. Aquaculture activities of the Anuenue Fisheries Research Center. Proc. Third Annual Big Island Aquaculture Conference. Pp. 24–26.
- Ota, Robert M. 1982. Financing your farm: a banker's viewpoint. Proc. Third Annual Big Island Aquaculture Conference. Pp. 27–28.
- Ota, Robert M. 1985. Aquaculture financing—a new challenge. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 9–14.
- Peebles, John Bradbury, III. 1977a. A rapid technique for molt staging in live *Macrobrachium rosenbergii*. Aquaculture 12:173–180.
- Peebles, John Bradbury, III. 1977b. Behavioral factors influencing movement, dispersion and mortality in *Macrobrachium rosenbergii*. Ph.D. Dissertation. University of Hawaii, Honolulu. 217 pp.
- Peebles, John Bradbury, III. 1978. Molting and mortality in *Macrobrachium rosenbergii*. Proc. Second Annual Albert L. Tester Memorial Symposium. University of Hawaii. Pp. 39–46.
- Peebles, John Bradbury, III. 1979. The roles of prior residence and relative size in competition for shelter by the Malaysian prawn, *Macrobrachium rosenbergii*. Fishery Bull. 76(4):905–911.
- Peebles, John Bradbury, III. 1980. Competition and habitat partitioning by the giant freshwater prawn *Macrobrachium rosenbergii* (de Man) (Decapoda, Palaemonidae). Crustaceana 38(1):4, 50–54.
- Peterson, Jeffrey J. 1982. Freshwater prawn harvesting: a comparison of three methods. J. World Mariculture Society 13:104-112.
- Peterson, Richard E., and K. K. Seo. 1978. Thermal aquaculture. Proc. Eighth Annual Meeting, World Mariculture Society. Pp. 491–503.
- Pierce, Barry A. 1984. Ecological studies of semiintensive prawn aquaculture ponds. Ph.D. Dissertation. University of Hawaii, Honolulu. 208 pp.

- Pierce, Barry A., and Edward A. Laws. 1982. Applications of a new radiotracer method for investigating prawn (*Macrobrachium rosenbergii*) ecology and digestive physiology. J. World Mariculture Society 13:28–40.
- Polovina, Jeffrey, and Harold Brown. 1978. A population dynamics model for prawn aquaculture. Proc. Ninth Annual Meeting, World Mariculture Society. Pp. 393–404.
- Polovina, Jeffrey, Harold Brown, and Yolanda Lindsey. 1977. Computer simulation of biological and management variables in a prawn growout system. University of Hawaii. Unpubl. manuscript. 18 pp.
- Premaratne, R. J., W. K. Nip, and J. H. Moy. [In press.] Characterization of proteolytic and collagenolytic psychrotrophic bacteria of ice-stored freshwater prawn, *Macrobrachium rosenbergii*. Marine Fisheries Review.
- Pruder, Gary. [In press.] Relevance of detrital and grazing food chains to aquaculture: a perspective. *In R. Pullin*, ed. Proc. International Conference on Detrital Systems for Aquaculture, 1985. Bellagio, Italy.
- Pruder, Gary D. 1986. Aquaculture and controlled eutrophication: photoautotrophic/heterotrophic interaction and water quality. Aquacultural Engineering 5(2-4):115-121.
- Pruder, Gary, Jim Wyban, and John Ogle. 1985. U.S. marine shrimp farming consortium: current status of domestic producers. Oceanic Institute, Waimanalo, Hawaii. Draft rep. 24 pp.
- Quirk, S. J. G. 1979. Maui County baitfish pilot project. Maui County, Hawaii. Unpubl. final rep. 13 pp.
- Ramos, Franklin, and Albert C. Smith. 1978a. Ketone bodies in fish skin mucus as an indicator of starvation: a preliminary report. J. Fish Biology 12:105–108.
- Ramos, Franklin, and Albert C. Smith. 1978b. The c-reactive protein (CRP) test for the detection of early disease in fishes. Aquaculture 14:261–266.
- Rappa, Peter. 1984. New machine may breathe new life into Hawaii's prawn farms. Makai 6(6):2-3, 5.
- Reddy, S. K., W. K. Nip, and C. S. Tang. 1981. Changes in fatty acids and sensory quality of fresh water prawn (*Macrobrachium rosenbergii*) stored under frozen conditions. J. Food Science 46:353–356.

- Ribakoff, Stephen, and Craig Pelton. 1977. Solid-state environmental controller for aquaculture systems (SECAS). The Progressive Fish-Culturist 39(3):109–111.
- Rietow, Allen. 1982. One approach to farm construction. Proc. Third Annual Big Island Aquaculture Conference. Pp. 33–35.
- Rock, Mike, and John Ahchong. 1984. Feasibility study of rainbow trout aquaculture in Hawaiian waters. Marine Options Program, University of Hawaii, Hilo. Final rep. 13 pp.
- Rogers, Gary, and Stanley Klemetson. 1985. Biofilter ammonia removal efficiency in aquaculture water reuse systems. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 317–335.
- Rothwell, Guy N., and Colin E. Nash. 1977. Aquaculture in tropical oceans. Oceanic Institute, Waimanalo, Hawaii. Unpubl. manuscript. 84 pp.
- Samples, Karl C. 1982. Economics of managing risk in aquaculture: planning for the unexpected. Proc. Third Annual Big Island Aquaculture Conference. Pp. 88–94.
- Samples, Karl C., and PingSun Leung. 1985. The effect of production variability on financial risks of freshwater prawn farming in Hawaii. Canadian J. Fisheries and Aquatic Sciences 42:307–311.
- Santos, G. A., and M. S. Doty. 1983. Agar from some Hawaiian red algae. Aquatic Botany 16:385–389.
- Santos, G. A., and M. S. Doty. 1985. Algal natural products. Department of Botany, University of Hawaii, Honolulu. Hawaii Botanical Science Paper No. 42.
- Sarver, Dale, Spencer R. Malecha, and David R. Onizuka. 1979. Development and characterization of genetic stocks and their hybrids in *Macrobrachium rosenbergii*: physiological responses and larval development rates. Proc. World Mariculture Society 10:880–892.
- Sarver, Dale, Spencer R. Malecha, and David R. Onizuka. 1980. Possible sources of variability in stocking mortality in post-larval *Macrobrachium rosenbergii*. Giant Prawn Farming, Developments in Aquaculture and Fisheries Science 10:99–113.
- Schug, Donald M., and Yung C. Shang. 1983. An economic feasibility study of cultured topminnows as an alternative baitfish for skipjack tuna fisheries in Hawaii, American Samoa, Guam, and the Northern Mariana Islands. University of Hawaii. Unpubl. rep.
- Scura, Edward D., Andrew M. Kuljis, Richard H. York, Jr., and Robert S. Legoff. 1979. The

- commercial production of oysters in an intensive raceway system. Proc. World Mariculture Society 10:624–630.
- Seidan, Allan. 1980. Aquaculture— an ancient skill surfaces. Aloha Magazine (January–February). Pp. 60–66.
- Shang, Yung Cheng. 1972. Some economic aspects of fresh water prawn farming in Hawaii. Proc. Kauai Aquaculture Conference. Pp. 14–16.
- Shang, Yung Cheng. 1981. Freshwater prawn (Macrobrachium rosenbergii) production in Hawaii: practices and economics. Aquaculture Development Program, Department of Land and Natural Resources, Hawaii. U.H. Sea Grant College Program, UNIHI-SEAGRANT-MR-81-07. 36 pp.
- Shang, Yung Cheng. 1982a. Comparison of freshwater prawn farming in Hawaii and in Thailand: culture practices and economics. J. World Mariculture Society 13:113–119.
- Shang, Yung Cheng. 1982b. Some potential pond management strategies of freshwater prawn farming in Hawaii: an economist's view. Proc. Third Annual Big Island Aquaculture Conference. Pp. 84–87.
- Shang, Yung Cheng. 1984. A preliminary assessment of the Hawaii market for locally cultured marine shrimp. Proc. Workshop on Shrimp and Prawn Markets. Pp. 105–107.
- Shang, Yung Cheng. 1985. Finfish aquaculture: trends of development and economic aspects. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 15–34.
- Shang, Yung Cheng. 1986a. Research on aquaculture economics: a review. Aquacultural Engineering 5(2–4):103–108.
- Shang, Yung Cheng. 1986b. The economics of marine shrimp farming: a survey. In G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 7–18.
- Shang, Yung Cheng, and Takuji Fujimura. 1977. The production economics of freshwater prawn (*Macrobrachium rosenbergii*) farming in Hawaii. Aquaculture 11:99–110.
- Shang, Yung Cheng, and Wayne J. Baldwin. 1980. Economic aspects of pond culture of topminnows (family Poecilidae) in Hawaii as an alternative baitfish for skipjack tuna. Proc. World Mariculture Society 11:592–595.
- Shang, Yung Cheng, and Clyde R. Mark. 1980. The current state-of-the-art of freshwater prawn farming in Hawaii. Giant Prawn Farming, Developments in Aquaculture and Fisheries Science 10:351–356.

- Shang, Yung Cheng, and Barry A. Costa-Pierce. 1983. Integrated aquaculture-agriculture farming systems: some economic aspects. J. World Mariculture Society 14:523–530.
- Shehadeh, Ziad H., and James N. Ellis. 1970. Induced spawning of the striped mullet *Mugil cephalus* L. J. Fish Biology 2:355–360.
- Shehadeh, Ziad H., and C. M. Kuo. 1972. Induced spawning of grey mullet (Mugil cephalus L.) with fractionated salmon pituitary extract. In The grey mullet: induced breeding and larval rearing research 1970–1972. Oceanic Institute Report No. 01-72-76-1. Waimanalo, Hawaii.
- Shepherd, Patrick E. 1979. Post-mortem changes in connective tissue of the freshwater prawn, *Macrobrachium rosenbergii*. M.S. Thesis. University of Hawaii, Honolulu. 56 pp.
- Shklov, John M., and Richard C. Fassler. 1978. Getting started with prawns. U.H. Sea Grant College Program Rep. AB-79. Pp. 1–2.
- Shleser, Robert A. 1986. Aquaculture in Hawaii, a social and economic dilemma. Aquacultural Engineering 5(2–4):87–101.
- Shleser, Robert A., and Frank L. Follett. 1984. Research and development in maturation and production of penaeid shrimp in the Western Hemisphere. *In* C. J. Sindermann, ed. Proc. 9th and 10th U.S.–Japan Meetings on Aquaculture. NOAA Tech. Rep. NMFS 16. Pp. 57–60.
- Simon, Clyde M. 1981. Design and operation of a large-scale, commercial penaeid shrimp hatchery. J. World Mariculture Society 12(2):322-334.
- Simon, Clyde M. 1982. Large-scale, commercial application of penaeid shrimp maturation technology. J. World Mariculture Society 13:301–312.
- Smith, Albert C. 1977. Immunologic reactions of the sea cucumber, *Holothuria cinerscens*, to serum from the milkfish, *Chanos chanos*. J. Invertebrate Pathology 29(3):326–331.
- Smith, Albert C. 1978. Pathology and biochemical genetic variation in the milkfish, *Chanos chanos*. J. Fish Biology 13:173–177.
- Smith, Albert C., and F. Ramos. 1980. Automated chemical analysis in fish health assessment. J. Fish Biology 17:445–450.
- Smith, Bruce. 1982. Business credit and loans—considerations for a financial plan/marketing. Proc. Third Annual Big Island Aquaculture Conference. Pp. 81–83.
- Specker, J. L., J. J. DiStefano, E. Gordon Grau, R. S. Nishioka, and H. A. Berm. 1984. Development-associated changes in thy-

- roxine kinetics in juvenile salmon. Endocrinology 115:399-406.
- Stahl, Margo S. 1979. The role of natural productivity and applied feeds in the growth of *Macrobrachium rosenbergii*. Proc. World Mariculture Society 10:92–109.
- Stanley, R. W., and Lori Barck Moore. 1983. The growth of *Macrobrachium rosenbergii* fed commercial feeds in pond cages. J. World Mariculture Society 14:174–184.
- Stanley, R. W., Lori Barck Moore, and Spencer R. Malecha. 1984. Research and development strategies for nutrition and feeding of the freshwater prawn, *Macrobrachium rosenbergii*. U.H. Sea Grant Quarterly 6(2):1–6.
- State of Hawaii. 1978. Aquaculture development for Hawaii. Department of Planning and Economic Development. 222 pp.
- State of Hawaii. 1981. Development of a finfish aquaculture industry in Hawaii. Department of Land and Natural Resources, Division of Aquatic Resources. Project Nos. 4-33-D/4-40-D. 11 pp.
- State of Hawaii. 1982. Marine resources and aquaculture programs in the state of Hawaii. Legislative Reference Bureau, State Capitol, Honolulu. 48 pp.
- State of Hawaii. 1984. Report of the governor's aquaculture industry development committee. Hawaii. 64 pp.
- Steinwascher, Kimo. 1982. Private sectors—availability of lands. Proc. Third Annual Big Island Aquaculture Conference. Pp. 21–23.
- Sylvester, J. R. 1974. Thermal response of juvenile Hawaiian mullet *Mugil cephalus* (L.) to acclimation time and fluctuating low temperatures. J. Fish Biology 6:791–796.
- Sylvester, J. R. 1975a. Biological considerations on the use of thermal effluents for finfish aquaculture. Aquaculture 6:1–10.
- Sylvester, J. R. 1975b. Factors influencing the efficacy of MS-222 to striped mullet (Mugil cephalus). Aquaculture 6:163–169.
- Sylvester, J. R., and Colin E. Nash. 1975. Thermal tolerance of eggs and larvae of Hawaiian striped mullet, *Mugil cephalus* L. Trans. American Fisheries Society 1:144–147.
- Sylvester, J. R., Colin E. Nash, and C. R. Emberson. 1975. Salinity and oxygen tolerances of eggs and larvae of Hawaiian striped mullet, *Mugil cephalus* L. J. Fish Biology 7:621-629.
- Szyper, James P. 1981. Short term starvation effects on nitrogen and phosphorus excretion by the chaetognath Sagitta enflata. Estuarine, Coastal and Shelf Science 13:691–700.

Szyper, James P. 1984-1985. Hawaiian backyard aquaculture program. Annual Rep. to the Aquaculture Development Program, Department of Land and Natural Resources, Hawaii. 34 pp.

Szyper, James P., Robert Bourke, and Lytha D. Conquest. 1984. Growth of juvenile dolphin fish, Coryphaena hippurus, on test diets differing in fresh and prepared components. J. World Mariculture Society 15:219–221.

Takenaka, B., C. Torricer, J. C. Cooper, and S. G. Pooley. 1984. Trends in the market for mahimahi and ono in Hawaii. Southwest Fisheries Center Honolulu Lab (NMFS)

Administration Rep. H-84-9. P. 20.

Tamaru, Clyde. 1985. Population structure of the milkfish Chanos chanos, past and proposed analysis. In Cheng-Sheng Lee and I-Chiu Liao, eds. Reproduction and culture of milkfish. Oceanic Institute and Tungkang Marine Laboratory, Waimanalo, Hawaii. P.

Tamashiro, Cyrus. 1982. Marketing approaches. Proc. Third Annual Big Island Aquaculture

Conference. Pp. 100-101.

Taylor, Leighton R., and Sydney A. Kraul, Jr. 1985–1986. The effect of diet and water quality on survival and growth of postlarval mahimahi, Coryphaena hippurus. U.H. Sea Grant Project Summary, U.H. Sea Grant College Program. 13 pp.

Trimble, Gordon M. 1972. Legal and administrative aspects of an aquaculture policy for Hawaii-an assessment. Department of Planning and Economic Development,

Hawaii. 61 pp.

- University of Hawaii. 1978. Aquaculture in Hawaii-species and systems. U.H. Sea Grant College Program Rep. AB-79. P. 3.
- Veith, W. J., and Spencer R. Malecha. 1983. Histochemical study of the distribution of lipids, 3α- and 3β-hydroxysteroid dehydrogenase in the androgenic gland of the cultured prawn, Macrobrachium rosenbergii (de Man) (Crustacea; Decapoda). South African J. Science 79:84-85.
- Wallace, Jeffrey S. 1986. Production and harvesting losses in prawn farming. In G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water

- Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 143-147.
- Wang, Jaw-Kai. 1985. Weight and width relationship of freshwater prawn (Macrobrachium rosenbergii). Aquacultural Engineering 4:21-32.
- Wang, Jaw-Kai, and James S. Kuwabara. 1976. Engineering analysis of prawn larvae culture. Trans. American Society Agricultural Engineers 19(6):1197–1200.
- Wang, Jaw-Kai, and Michael R. Williamson. 1976. Automated prawn larvae/juvenile separation. Oceans '76 Proc. 13F:1-3.
- Wang, Jaw-Kai, and Michael R. Williamson. 1977. The design of a continuous juvenile production system for Macrobrachium rosenbergii. Trans. American Society of Agricultural Engineers 20(4):792-794.

Wang, Jaw-Kai, and Douglas C. Kneale. 1979. Individual nursery rearing of Macrobrachium rosenbergii. Hawaii Agricultural Experiment Station Journal Series No. 2462.

11 pp.

Wang, Jaw-Kai, and Michael R. Williamson. 1980. Aquacultural engineering in fresh water prawn production. Trans. American Society of Agricultural Engineers 23(5): 1318-1321, 1325.

Wang, Jaw-Kai, and Kim-Van Yow. 1980. Analysis of oyster production in Hawaii. Hawaii Agricultural Experiment Station

Journal Series No. 2542. 17 pp.

Wang, Jaw-Kai, and Chee Y. Lam. 1985. Physical dimension relations of juvenile P. stylirostris. J. World Aquaculture Society 17(1-4).

Wang, Jaw-Kai, and Thomas M. Losordo. 1985. The effect of earthen pond bank grass on prawn yield. J. World Mariculture Society 16:217-224. Also Hawaii Institute of Tropical Agriculture and Human Resources Journal Series No. 2934. 13 pp.

Wang, Jaw-Kai, and M. Ray Smith. 1986. Specialization and the role of new technology in agriculture. American Society

of Agricultural Engineers. P. 7.

Wang, Jaw-Kai, and M. Ray Smith. 1987. Specialization and the role of new technology in agriculture. Proc. International Symposium on Agricultural Mechanization and International Cooperation in High Technology Era. Pp. 395-398. Also Hawaii Institute of Tropical Agriculture and Human Resources Journal Series Paper No. 3060.

Wang, Jaw-Kai, Wen-Yuan Huang, and T. Fujimura. 1975. Some characteristics of earthen pond prawn production in Hawaii.

- U.H. Sea Grant College Program Working Paper No. 10. Also Hawaii Agricultural Experiment Station Journal Series No. 1893. 20 pp.
- Watts, Robert. 1981. Backyard aquaculture examined in Hawaii. Aquaculture Magazine 7(6):14–15.
- Weber, G. M., and Cheng-Sheng Lee. 1985. Effects of 17α-methyl-testosterone on spermatogenesis and spermiation in the grey mullet, *Muqil cephalus* L. J. Fish Biology 26:77–84.
- Weidenbach, Ronald P. 1980. Dietary components of freshwater prawns reared in Hawaiian ponds. Giant Prawn Farming, Developments in Aquaculture and Fisheries Science 10:257–267.
- Wheaton, Fredrick W. 1980. Review of "Aquacultural Engineering." Fisheries 5(1).
- Whitteman, Greg, Gary Rogers, and Arlo W. Fast. 1985. A data logger system for measurement of weather and water quality parameters. Proc. Second International Conference on Warm Water Aquaculture Finfish. Pp. 177–188.
- Williamson, Michael R. 1979. Development of a paddle wheel aerator for the Hawaii prawn industry. Hawaii Agricultural Experiment Station Research Rep. 242. 7 pp.
- Williamson, Michael R., and Jaw-Kai Wang. 1978. Mechanical separation of fresh-water prawns. American Society of Agricultural Engineers. Paper No. 78-5035. 8 pp.
- Williamson, Michael R., and Jaw-Kai Wang. 1979. Prawn production equipment status and progress. World Mariculture Society Meeting, January 22–26, 1979.
- Williamson, Michael R., and Jaw-Kai Wang. 1982. An improved harvesting net for freshwater prawns. Aquacultural Engineering 1(2):81-91.
- Winans, G. A. 1980. Geographic variation in the milkfish, *Chanos chanos*. I. Biochemical evidence. Evolution 34:558–574.
- Wyban, James A. 1982. Brackish water polyculture in an ancient Hawaiian fishpond. Proc. Third Annual Big Island Aquaculture Conference. Pp. 69–71.
- Wyban, James A., Cheng-Sheng Lee, James N. Sweeney, and William K. Richards, Jr. 1987. Observations on development of a maturation system for *Penaeus vannamei*. J. World Aquaculture Society 18:198–200.
- Wyban, James A., J. Ogle, Gary D. Pruder, Lawrence W. Rowland, and PingSun Leung. 1986. Design, operation, and comparative financial analysis of shrimp farms in Hawaii and Texas. Oceanic Institute, Waimanalo, Hawaii. Unpubl. manuscript. 29 pp.

Wyban, James A., Cheng-Sheng Lee, Vernon T. Sato, James N. Sweeney, and William K. Richards, Jr. 1987. Effects of stocking density on shrimp growth rates in manure fertilized ponds. Aquaculture 61:23–32.

- Yamada, Randolph. 1984. Quantitative genetic variation in the fish, tilapia (*Oreochromis mossambicus*). Ph.D. Dissertation. University of Hawaii, Honolulu. 110 pp.
- Yamauchi, Hiroshi, Kendrick K. F. Lee, and Henry K. Gee. 1983. An overview of landbased oyster aquaculture in Hawaii. Hawaii Institute of Tropical Agriculture and Human Resources Research Extension Series 029. 24 pp.
- Yano, Isao, James N. Sweeney, Clyde S. Tamaru, and James A. Wyban. 1986. Internal tagging method for individual identification of penaeid shrimp. Aquaculture 56:317–321.
- York, Richard H., Jr. 1986. Economics of pond polyculture of clams (*Mercenaria mercenaria*) and shrimp (*Penaeus* spp.) in Hawaii. In G. L. Rogers, R. Day, and A. Lim, eds. Proc. First International Conference on Warm Water Aquaculture Crustacea, February 9–11, 1983. Brigham Young University, Laie, Hawaii. Pp. 43–45.
- Yoshida, Richard N. 1960. The effects of temperature and photoperiod variation on the spawning frequency of *Tilapia mossambica* Peters. M.S. Thesis. University of Hawaii, Honolulu. 49 pp.
- Yoshida, Ronald. 1982. Channel catfish and white amur. Proc. Third Annual Big Island Aquaculture Conference. Pp. 54–57.
- Yow, Kim-Van, and Jaw-Kai Wang. 1980. Mechanical cleaning and sorting of Hawaiian cultured oysters. American Society of Agricultural Engineers. Paper No. 80-6502. 14 pp.
- Yuen, H. S. H. 1961. Experiments on the feeding behavior of skipjack at sea. Pacific Tuna Biology Conference, August 1961. U.S. Bureau of Commercial Fisheries Biological Laboratory, Honolulu. Unpubl. manuscript. 6 pp.
- Yunker, Michael P., and David K. Barclay. 1979. General plan for Kohala prawns. Anuenue Fisheries Research Center. Unpubl. manuscript. 24 pp.